

### Nucleotide Sequence of Human NNT-1 cDNA

1	ATTAAAGCTT	CGCCGGAGCC	GCGGCTCGCC	CTCCCACTCC	GCCAGCCTCC
51	GGGAGAGGAG	CCGCACCCGG	CCGGCCCAGC	CCCAGCCCCA	TGGACCTCCG
101	AGCAGGGGAC	TCGTGGGGGA	TGTTAGCGTG	CCTGTGCACG	GTGCTCTGGG
151	ACCTCCCTGC	AGTGCCAGCT	CTCAATCGCA	CAGGGGACCC	AGGGCCTGGC
201	CCCTCCATCC	AGAAAACCTA	TGACCTCACC	CGCTACCTGG	AGCACCAACT
251	CCGCAGCTTG	GCTGGGACCT	ATCTGAACTA	CCTGGGGCCC	CCTTTCAACG
301	AGCCAGACTT	CAACCCTCCC	CGCCTGGGGG	CAGAGACTCT	GCCCAGGGCC
351	ACTGTTGACT	TGGAGGTGTG	GCGAAGCCTC	AATGACAAAC	TGCGGCTGAC
401	CCAGAACTAC	GAGGCCTACA	GCCACCTTCT	GTGTTACTTG	CGTGGCCTCA
451	ACCGTCAGGC	TGCCACTGCT	GAGCTGCGCC	GCAGCCTGGC	CCACTTCTGC
501	ACCAGCCTCC	AGGGCCTGCT	GGGCAGCATT	GCGGGCGTCA	TGGCAGCTCT
551	GGGCTACCCA	CTGCCCCAGC	CGCTGCCTGG	GACTGAACCC	ACTTGGACTC
601	CTGGCCCTGC	CCACAGTGAC	TTCTCCAGA	AGATGGACGA	CTTCTGGCTG
651	CTGAAGGAGC	TGCAGACCTG	GCTGTGGCGC	TCGGCCAAGG	ACTTCAACCG
701	GCTCAAGAAG	AAGATGCAGC	CTCCAGCAGC	TGCAGTCACC	CTGCACCTGG
751	GGGCTCATGG	CTTCTGACTT	CTGACCTTCT	CCTCTTCGCT	CCCCCCC

## FIGURE 2

Genomic sequences of the human NNT-1

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1  aacctgcgag tgggcctggc ggatgggatt attaaagctt cgccggagcc
51  ggggctcgcc ctccactcc gccagcctcc gggagaggag ccgcacccgg
101 ccggcccagc ccagcccccA TGGACCTCCG AGCAGgt--- -----
    ----- ( >1 kb ) ----- tgaaaaccca

151 aactagccct gctcttcata acatgacaag cagcgcccca tctgatacct
201 aaaccgacca agtcacagcc ctccaactca cctcttgctt gccagacct
251 caccacatcc ttgstggact caaacctcaa ccgcactaaa tcaaccaaat
301 cccaagtcta aactaatctg aaacttttaa agtaaccagc tccttaaacc
351 taacctagcc caatgccaat tatacttacc ctagccaaac cctaactgcc
401 tttgccagtc caaagtgtcc actgaatcct caccttggtc ctactgaaa
451 atcccagaaa agcatatttc ccactgccc acatccctcc ttacagcacc
501 caaccctggc ctctggactc ctggtatcct gggatgtcca aactctgcag
551 tgccatcagc caacaagccc gactcgtcaa atgcacctct ctcccttctc
601 gtccccaccc ttgcaggctg atggaaaggc ctcatgaag tccaactttt
651 cccaccta caaccaagaac ggggtgaacc tccacactgc caccgttccc
701 tgagagtgag cactaaatct cttcaatct aacccccacc tacacttccc
751 acactcagga atcacatcct agaataacc caaaactaag ccccataagg
801 cagcccgacc ctagtgtgtt aaccctatac cttgttctct atgggtgagt
851 ctgttcttgg cggccgcctc tctcctgctt cctcccttag agctgactgt
901 gctcagcctg ccagctctga catgtgctgt ctcccacct ctgactcccc
951 tcaagctgca gtgggactgg aagactggca ggaagctagg gtacaactgg
1001 aacacaggca ggtcgacctg cagtccttag gcctggcccc gtccctccat
1051 gtacacacat atacatgttg gcacacacac agtggcacac atgccaaaga
1101 ctctctcagc tgacacacag atccattctc aagtatctac tgatagacac
1151 tcatgcgtgc caagtctca tctcaaaca tacacatgcc tctctttctc
1201 tcccgtcttg ccaggagtgt ttccctcctt ccatcccttc tgccctccat
1251 ctggtgtccc accctcacc cccaccagc ccaaggtggg gacagacacc
1301 tgaggggctg ccagctgctt ccccggtggg gcccgggccc cgctcatgct
1351 tctcgtccat cctgcccaca gGGGACTCGT GGGGGATGTT AGCGTGCCTG
1401 TGCACGGTGC TCTGGCACCT CCCTGCAGTG CCAGCTCTCA ATCGCACAGG
1451 GGACCCAGGG CCTGGCCCCT CCATCCAGAA AACCTATGAC CTCACCCGCT
```

Sequence of the human NNT-1

**Figure 2** (continued)

1501 ACCTGGAGCA CCAACTCCGC AGCTTGGCTG GGACCTATgt gagtatccag  
1551 cgtaggaatc tgggagttgg ggaggagtga ggagttgggg aaagacagtc  
1601 ctaaccgtgg aggggttctgg taaatgatgg ggtgaggagg ggctctttgg  
1651 ctcccaccag tccccctgtc tgggtctatct cctgcccttc cctcttaggt  
1701 ggccccccca cttccccatc cctggcccca ggactaggca tgtgggcagg  
1751 cctcgcaccc gccttggccc attgccccac tggctgccag cccagccgcc  
1801 cgcctcccc tggggggcgg ggaagtctcc tctgtttaca ccgtgttgtg  
1851 gtgtctcttg cgcgggcggg gttgggtggg gacagagggg cccacctcc  
1901 catgcctgcg ttccagctcg cctctgcccc cagacctggg gccctgctgc  
1951 tctggacca ggggcctccc ttccgtctgc ctctcccatc ctagctgggc  
2001 ctccataggg ggtcatgggg gaaggggact gtagggaacc caggcagtag  
2051 tggcaggggg tttaggggtgt ggatggagggt tatgctgtaa ggatttgggg  
2101 gtggtccaga ggtgttcaga gagcccagga gagaaggaa gagggttggg  
2151 ggagccgagg caccatgggg aaccggcccc ctcttcccgt gttcctcttc  
2201 cacatcccag accctactct ggagccaggg aaagaaaagg gaagaagggtg  
2251 gcgggggagc tggctccagc cccaggatac accgaggaaa ttagtttgtc  
2301 tctgtgcttg tcagcgtgtg aacctcccc tgggcccttg cctatcccag  
2351 gcctctcccc ttgcttctcc cttctttccc agttatacat ctccctcatc  
2401 cctttccctg ggccccagcc gctccccga ggggttgaaa gggctctgcc  
2451 ctcttcccta taccatgctg tcttccatag ccttccctct gtcctactca  
2501 tgagactgcc tccatttctt ccttctgcaa cctgctcct atcagctgaa  
2551 cccttctttt ggagtgttag tgagtaccg tctctcccca gccctcagc  
2601 tgggtgggct ggggtgtgtc gcggcaaagt gggctctggt tccaatgggc  
2651 cactctcatc tctctcttgt tccttgtgca gaaaaccttt gcttactcc  
2701 actgcctct ctagttcccg accctttttt tctcctggct ttccctgcca  
2751 aatttctcca aggagtggtc tacacctct gcctccactt cctctccacc  
2801 cactcacttc ttaacccct gcaatctggc ttccaggccc cagcaatggt  
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2901 aggcctatc tccttgctgt ctgttttgca gccacactgc tgagcgctgc  
2951 tgccttctcg aactcctctt ccttgggtct tgcactctcc tgggccacct  
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3101 cctgagcgtc ttgtgcgtct cctcctctc ctttttctac gcctctccat  
3151 tggagagctc accaccgcca ctgcttcaac tgtcacctgc atacaaatga

3201	tatccttatt	ggaaaaactc	agggaggcca	tgaacaaaga	agcctagcat
3251	ggagacaggg	ccagtgtcag	gggacacaaa	aaatagaaac	tttggggagca
3301	ggtatctcct	tgggtggtgag	ccagcggctc	tgccctcctc	cttccccatc
3351	accctctcct	tttcacagCT	GAACTACCTG	GGCCCCCCTT	TCAACGAGCC
3401	AGACTTCAAC	CCTCCCCGCC	TGGGGGCAGA	GACTCTGCCC	AGGGCCACTG
3451	TTGACTTGGA	GGTGTGGCGA	AGCCTCAATG	ACAAACTGCG	GCTGACCCAG
3501	AACTACGAGG	CCTACAGCCA	CCTTCTGTGT	TACTTGCGTG	GCCTCAACCG
3551	TCAGGCTGCC	ACTGCTGAGC	TGCGCCGCAG	CCTGGCCCAC	TTCTGCACCA
3601	GCCTCCAGGG	CCTGCTGGGC	AGCATTGCGG	GCGTCATGGC	AGCTCTGGGC
3651	TACCCACTGC	CCCAGCCGCT	GCCTGGGACT	GAACCCACTT	GGACTCCTGG
3701	CCCTGCCCCAC	AGTGACTTCC	TCCAGAAGAT	GGACGACTTC	TGGCTGCTGA
3751	AGGAGCTGCA	GACCTGGCTG	TGGCGCTCGG	CCAAGGACTT	CAACCGGCTC
3801	AAGAAGAAGA	TGCAGCCTCC	AGCAGCTGCA	GTCACCTGTC	ACCTGGGGGC
3851	TCATGGCTTC	tgacttctga	ccttctcctc	ttcgctcccc	cttcaaacc
3901	tgctcccact	ttgtgagagc	cagccctgta	tgccaacacc	tgttgagcca
3951	ggagacagaa	gctgtgagcc	tctggccctt	tcctggaccg	gctggggcgtg
4001	tgatgcgatc	agccctgtct	cctccccacc	tcccaaaggt	ctaccgagct
4051	ggggaggagg	tacagtaggc	cctgtcctgt	cctgtttcta	caggaagtca
4101	tgctcgaggg	agtgtgaagt	ggttcagggt	ggtgcagagg	cgctcatggc
4151	ctcctgcttc	ttgcctacca	cttggccagt	gccacccag	cccctcaggt
4201	ggcacatctg	gagggcaggg	gttgaggggc	caccaccaca	catgcctttc
4251	tggggtgaag	ccctttggct	gccccactct	ccttggatgg	gtgttgctcc
4301	cttatcccca	aatcactcta	tacatccaat	tcaggaaaca	aacatggtgg
4351	caattctaca	caaaaagaga	tgagattaac	agtgcagggt	tgggggtctgc
4401	attggaggtg	ccctataaac	cagaagagaa	aatactgaaa	gcacaggggc
4451	agggacagac	cagaccagac	ccaggagtct	ccaaagcaca	gagtggcaaa
4501	caaaacccga	gctgagcatc	aggaccttgc	ctcgaattgt	cttccagtat
4551	tacggtgctc	cttctctgcc	ccctttccca	gggtatctgt	gggttgccag
4601	gctggggagg	gcaaccatag	ccacaccaca	ggatttcctg	aaagtttaca
4651	atgcagtagc	attttgggg	gtaggggtgg	agctccccaa	ggccctgccc
4701	cccagcccca	cccactcatg	actctaagtg	tgttggtatta	atatttattt
4751	atttggagat	gttattttatt	agatgatatt	tattgcagaa	tttctattct
4801	tgtattaaca	aataaaatgc	ttgcccaga	acttagtctc	tttggccagc
4851	ctcacccctc	ctgggtgctca	tcagactctt	gccacccctg	gctcccactc

**Figure 2** (continued)

4901 cctgcttgcc tctggtggag ctgcacagag ctctgggaag aggcctcttt  
4951 cctccccgca ctggggcgat gggcgcacct cagacttacc cactgctgct  
5001 gccaccacca accccttgat ccctcagtc tccacacag cttctgtcca  
5051 cccaggttt ccctcacccc acctttgcta agtcttctc a

109730 1027660

[illegible]

1	TATTATTAA	GCTTCGCCG	AGCCGCGCT	CGCCCTCCA	CTCCGCCAG
51	CTCTGGGAGA	GGAGCCGCG	CCGCGCGCC	CGCCCCCAG	CCCCATGGAC
101	CTCCGAGCAG	GGGACTCGTG	GGGATGTTA	GCTTGCCTAT	GCACGGTGCT
151	GTGGCACCTC	CCTGCAGTGC	CAGCTCTTAA	TCGCACAGGA	GATCCAGGCC
201	CTGGCCCCTC	CATCCAGAAA	ACCTATGACC	TCACCCGCTA	CCTGGAGCAT
251	CAACTCCGCA	GCTTAGCTGG	GACCTACCTG	AACTACCTGG	GGCCCCCTTT
301	CAACGAGCCT	GACTTCAATC	CTCCTCGACT	GGGGGCAGAA	ACTCTGCCCA
351	GGGCCACGGT	CAACTTGGA	GTGTGGCGAA	GCCTCAATGA	CAGGCTGCGG
401	CTGACCCAGA	ACTATGAGGC	GTACAGTCAC	CTCCTGTGTT	ACTTGCGTGG
451	CCTCAACCGT	CAGGCTGCCA	CAGCTGAACT	CCGACGTAGC	CTGGCCCACT
501	TCTGTACCAG	CCTCCAGGGC	CTGCTGGGCA	GCATTGCAGG	TGTCATGGCG
551	ACGCTTGGCT	ACCCACTGCC	CCAGCCTCTG	CCAGGGACTG	AGCCAGCCTG
601	GGCCCTTGGC	CCTGCCCCA	GTGACTTCCT	CCAGAAGATG	GATGACTTCT
651	GGCTGCTGAA	GGAGCTGCAG	ACCTGGCTAT	GGCGTTCAGC	CAAGGACTTC
701	AACCGGCTTA	AGAAGAAGAT	GCAGCCTCCA	GCAGCTTCAG	TCACCCCTGCA
751	CTTGGAGGCA	CATGGTTTCT	GACCTCTGAC	CCTTAACCCC	CACACCTCCA
801	GGCCCACTCA	GCTGTGCTT			

**FIGURE 3**

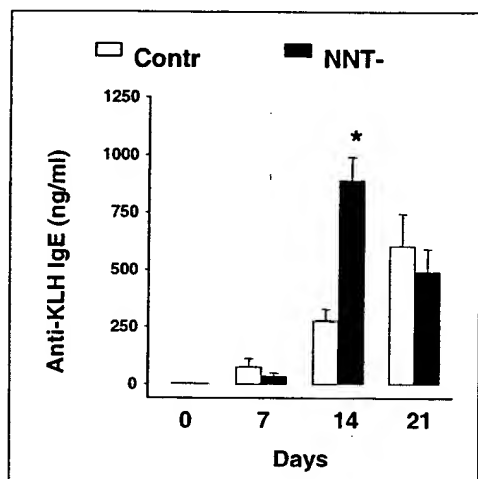
Amino acid Sequence of Human NNT-1 cDNA

-27. 1  
MDLR AGDSWGLAC LCTVLWHLPA VPALNRTGDP GPGPSIQKTY 17  
DLTRYLEHQL RSLAGTYLNY LGPPFNEPDF NPPRLGAETL PRATVDLEW 67  
RSLNDKLRLT QNYEAYSHLL CYLRGLNRQA ATAELRRSLA HFCTSLQGLL 117  
GSIAGVMAAL GYPLPQPLPG TEPTWTPGPA HSDFLQKMDD FWLLKELQW 167  
LWRSKDFNR LKKKMPPAA AVTLHLGAHG F\* 198

00931704 "081604



**FIGURE 7**



0904701 001601  
FOI000 1027000

**FIGURE 6**

